

## 100H94~2.TXT SEQUENCE LISTING

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Gly Pro Gly Thr Ile Lys Lys Ile Ser Phe Pro Glu Gly Leu Pro Phe 50 60

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Lys Ile Ser Asn Glu Ile Val Ile Val Ala Thr Pro Asp Gly Gly Ser 100 105 110

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Tyr Asn Tyr Ser Val Ile Glu Gly Gly Pro Ile Gly Asp Thr Leu Glu
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Val Ala Gln Glu Gln Ser Cys Arg Arg Pro Asn Ala Gln Arg Phe Gly 100 105 110

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Dermatophagoides pteronyssinus

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Dermatophagoides pteronyssinus

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Val Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Met Asn Cys Pro Leu 65 70 75 80
Val Asn Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys
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110

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Val Pro Gly Ile Asp Pro Asn Ala Cys Asn Tyr Met Lys Cys Pro Leu 65 70 75 80

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gtt ccc ggt Val Pro Gly 65									240
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Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Lys Ala Tyr
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Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu
225 230 240
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Phe Lys Ala Ala Leu Ala Ala Ala Gly Val Pro Pro Ala Asp Lys 50 60
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130 135 140
His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly 145 150 155 160
Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala
165 170 175
Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Ile Thr Val Phe Glu
180 185
Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu
195 200 205
Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Lys Ala Tyr
210 220
Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu
225 230 235 240
Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala 245 250 255
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Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Ile Asn Ala Gly
                                                                                                                      144
ttc aag gcg gcc ttg gcc gct gcc gcc ggc gtc ccg cca gcg gac aag
Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val Pro Pro Ala Asp Lys
50 55 60
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tac aac acg ttc gtc gca acc ttc ggc gcg gcc tcc aac aag gcc ttc
Tyr Asn Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe
65 70 75 80
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                                                                                                                      288
gcg gag ggc ctc tcg ggc gag ccc aag ggc gcc gcc gaa tcc agc tcc
Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser
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Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr
aag aca gcc gag ggc gcg acg cct gag gcc aag tac gac gcc tac gtc
Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val
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                                                120
gcc acc gta agc agc gcg ctc cgc atc atc gcc ggc acc ctc gag gtc Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val
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cac gcc gtc aag ccc gcg gcc gag gag gtc aag gtc atc ccc gcc ggc
His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly
145 150 155
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gag ctg cag gtc atc gag aag gtc gac gcc gcc ttc aag gtc gcc gcl gcc glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala
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acc gcc gcc aac gcc gcc ccc gcc aac gac aag att acc gtc ttc gag
Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Ile Thr Val Phe Glu
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                                                       185
gcc gcc ttc aac gac gcc atc aag gcg agc acg ggc ggc gcc tac gag
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195 200 205
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agc tac aag ttc atc ccc gcc ctg gag gcc gcc gtc aag aaa gcc tac
Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Lys Ala Tyr
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gcc aag ccc gcc Ala Lys Pro Ala 260	Ala Ala Ala	acc gcc acc Thr Ala Thr 265	gca acc gcc gcc Ala Thr Ala Ala 270	gtt ggc 816 Val Gly
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Lys Ala Thr Thr 35	Glu Glu Gln	Lys Leu Ile 40	Glu Lys Ile Asn 45	Ala Gly
Phe Lys Ala Ala 50	Leu Ala Ala 55	Ala Ala Gly	Val Pro Pro Ala 60	Asp Lys
Tyr Asn Thr Phe 65	Val Ala Thr 70	Phe Gly Ala	Ala Ser Asn Lys 75	Ala Phe 80

Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr 100 105 110

Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val 115 120 125

Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val 130 135 140

His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly 145 150 155 160

Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala 165 170 175 Page 68

Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Ile Thr Val Phe Glu Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu 195 200 205

Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Lys Ala Tyr 210 215 220

Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu 225 230 235 240

Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala 245 250 255

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aag Lys	aca Thr	gcc Ala 115	gag Glu	ggc Gly	gcg Ala	acg Thr	cct Pro 120	gag Glu	gcc Ala	aag Lys	tac Tyr	gac Asp 125	gcc Ala	tac Tyr	gtc Val	384
gcc Ala	acc Thr 130	gta Val	agc Ser	gag Glu	gcg Ala	ctc Leu 135	agc Ser	atc Ile	atc Ile	gcc Ala	ggc Gly 140	acc Thr	ctc Leu	gag Glu	gtc Val	432
cac His 145	gcc Ala	gtc val	aag Lys	ccc Pro	gcg Ala 150	gcc Ala	gag Glu	gag Glu	gtc val	aag Lys 155	gtc Val	atc Ile	ccc Pro	gcc Ala	ggc Gly 160	480
gag Glu	ctg Leu	cag Gln	gtc Val	atc Ile 165	gag Glu	aag Lys	gtc Val	gac Asp	gcc Ala 170	gcc Ala	ttc Phe	aag Lys	gtc val	gct Ala 175	gcc Ala	528
					gcc Ala											576
gcc Ala	gcc Ala	ttc Phe 195	aac Asn	gac Asp	gcc Ala	atc Ile	aag Lys 200	gcg Ala	agc Ser	acg Thr	ggc Gly	ggc Gly 205	gcc Ala	tac Tyr	gag Glu	624
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gcc Ala 225	gcc Ala	acc Thr	gtc val	gcc Ala	acc Thr 230	gcg Ala	ccg Pro	gag Glu	gtc Val	aag Lys 235	tac Tyr	act Thr	gtc Val	ttt Phe	gag Glu 240	720
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Phe Lys Ala Ala Leu Ala Ala Ala Gly Val Pro Pro Ala Asp Lys 50 55 60

Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe 65 70 75 80

Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser 90 95

Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr 100 105 110

Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val 115 120 125

Ala Thr Val Ser Glu Ala Leu Ser Ile Ile Ala Gly Thr Leu Glu Val 130 135 140

His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly 145 150 155 . 160

Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala 165 170 175

Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Ile Thr Val Phe Glu 180 185 190

Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu 195 200 205

Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Lys Ala Tyr 210 215 220

Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu 225 230 235 240

Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala 245 250 255

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                                                                                                     144
ttc aag gcg gcc ttg gcc gct gcc gcc ggc gtc ccg cca gcg gac aag
Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val Pro Pro Ala Asp Lys
50 55 60
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Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe
65 70 75 80
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gcg gag ggc ctc tcg ggc gag ccc aag ggc gcc gcc gaa tcc agc tcc
Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser
                                                                                                      288
                                                     Page 72
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85

aag Lys	gcc Ala	gcg Ala	ctc Leu 100	acc Thr	tcc Ser	aag Lys	ctc Leu	gac Asp 105	gcc Ala	gcc Ala	tac Tyr	aag Lys	ctc Leu 110	gcc Ala	tac Tyr	336
aag Lys	aca Thr	gcc Ala 115	gag Glu	ggc Gly	gcg Ala	acg Thr	cct Pro 120	gag Glu	gcc Ala	aag Lys	tac Tyr	gac Asp 125	gcc Ala	tac Tyr	gtc Val	384
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gcc Ala	aag Lys	ccc Pro	gcc Ala 260	gcc Ala	gct Ala	gcc Ala	acc Thr	gcc Ala 265	acc Thr	gca Ala	acc Thr	gcc Ala	gcc Ala 270	gtt Val	ggc Gly	816
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Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Glu Pro Ala Gly 20 25 30

Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Lys Asn Ala Gly 35 40 45 Page 73

<sup>&</sup>lt;210> <211> 66 287 PRT

<sup>&</sup>lt;212> <213> Phleum pratense

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<sup>&</sup>lt;211> 861

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35 40 45
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ttc aag gcg gcc ttg gcc gct gcc gcc ggc gtc ccg cca gcg gac aag
Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val Pro Pro Ala Asp Lys
50 55 60
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tac agg acg ttc gtc gca acc ttc ggc gcg gcc tcc aac aag gcc ttc
Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe
65 70 75 80
                                                                                                                   240
gcg gag ggc ctc tcg ggc gag ccc aag ggc gcc gcc gaa tcc agc tcc
Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser
85 90 95
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aag gcc gcg ctc acc tcc aag ctc gac gcc gcc tac aag ctc gcc tac
Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr
                                                                                                                   336
aag aca gcc gag ggc gcg acg cct gag gcc aag tac gac gcc tac gtc
Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val
                                                                                                                   384
gcc acc gta agc agc gcg ctc cgc atc atc gcc ggc acc ctc gag gtc Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val
                                                                                                                   432
                                                                                                                   480
cac gcc gtc aag ccc gcg gcc gag gag gtc aag gtc atc ccc gcc ggc
His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly
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gcc gcc ttc aac gac gcc atc aag gcg agc acg ggc ggc gcc tac gag
Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu
195 200 205
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agc tac aag ttc atc ccc gcc ctg gag gcc gcc gtc aag aaa gcc tac
Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Lys Ala Tyr
210 215 220
                                                                                                                   672
gcc gcc acc gtc gcc acc gcg ccg gag gtc aag tac act gtc ttt gag
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225 230 235 240
                                                                                                                   720
acc gca gaa aaa aag gcc atc acc gcc atg tcc gaa gca aaa aag gct
Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala
245 250 255
                                                                                                                   768
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260 265 270
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Phe Lys Ala Ala Leu Ala Ala Ala Gly Val Pro Pro Ala Asp Lys 50 60
Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe 65 70 75 80
Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser 90 95
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100 105 110
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Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala
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Thr Ala Ala Asn Ala Ala Pro Ala Asn His Lys Phe Thr Val Phe Glu
Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu
195 200 205
Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Lys Ala Tyr
210 215 220
Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu
225 230 235 240
Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala 245 250 255
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Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val 115 120 125

Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val 130 135 140

His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly 145 150 155 160

Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala 165 170 175

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85 90 95
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Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val Pro Pro Ala Asp Lys 50 60 Page 84

Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Lys Asn Ala Gly  $35 \hspace{1cm} 40 \hspace{1cm} 45$ 

Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe 65 70 75 80 Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser 90 95 Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr 100 105 110Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val 115 120 125 Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val 130 135 140 His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly 145 150 155 160 Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala 165 170 175 Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Ile Thr Val Phe Glu 180 185 190 Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu 195 200 205 Ser Tyr Asn Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Gln Ala Tyr 210 215 220 Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu 225 230 235 240 Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala 245 250 255 Ala Lys Pro Ala Ala Ala Ala Thr Ala Thr Ala Thr Ala Ala Val Gly 260 265 270 Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly Gly Tyr Lys Val 275 280 285

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Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val Pro Pro Ala Asp Lys
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816

861

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Page 90

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Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Lys Asn Ala Gly
35 40 45
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gag Glu	ctg Leu	cag Gln	gtc Val	atc Ile 165	gag Glu	aag Lys	gtc Val	gac Asp	gcc Ala 170	gcc Ala	ttc Phe	aag Lys	gtc Val	gct Ala 175	gcc Ala	!	528
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		acc Thr									Tyr					7	720
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tac ac Tyr Th	c ccc go r Pro A 20	la Thr	ccc Pro	gcc Ala	gcc Ala	ccg Pro 25	gcc Ala	gga Gly	gcg Ala	gag Glu	cca Pro 30	gca Ala	ggt Gly	96
aag gc Lys Al	g acg ac a Thr Th 35	cc gag hr Glu	gag Glu	cag Gln	aag Lys 40	ctg Leu	atc Ile	gag Glu	aag Lys	aaa Lys 45	aac Asn	gcc Ala	ggc Gly	144
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tac ag Tyr Ar 65	g acg ti g Thr Pl	tc gtc he Val	gca Ala 70	acc Thr	ttc Phe	ggc Gly	gcg Ala	gcc Ala 75	tcc Ser	aac Asn	aag Lys	gcc Ala	ttc Phe 80	240
gcg ga Ala Gl	g ggc ci u Gly Lo	tc tcg eu Ser 85	ggc Gly	gag Glu	ccc Pro	aag Lys	ggc Gly 90	gcc Ala	gcc Ala	gaa Glu	tcc Ser	agc Ser 95	tcc Ser	288
aag gc Lys Al	c gcg c a Ala Lo 10	tc acc eu Thr 00	tcc Ser	aag Lys	ctc Leu	gac Asp 105	gcc Ala	gcc Ala	tac Tyr	aag Lys	ctc Leu 110	gcc Ala	tac Tyr	336
aag ac Lys Th	a gcc g r Ala G	ag ggc lu Gly	gcg Ala	acg Thr	cct Pro	gag Glu	gcc Ala Page	Lys	tac Tyr	gac Asp	gcc Ala	tac Tyr	gtc Val	384

120

125

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gag Glu	ctg Leu	cag Gln	gtc val	atc Ile 165	gag Glu	aag Lys	gtc val	gac Asp	gcc Ala 170	gcc Ala	ttc Phe	aag Lys	gtc Val	gct Ala 175	gcc Ala	528
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Lys	Ala	Thr 35	Thr	Glu	Glu	Gln	Lys 40	Leu	Ile	Glu	Lys	Lys 45	Asn	Ala	Gly	
Phe	Lys 50	Ala	Аlа	Leu	Αla	Ala 55	Ala	Ala	Gly	val	Pro 60	Pro	Ala	Asp	Lys	

Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe 65 70 75 80 Page 95

Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser 90 95 Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr 100 105 110 Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val 115 120 125 Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val 130 135 140 His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly 145 150 155 160 Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala 165 170 175 Thr Ala Ala Asn Ala Ala Pro Ala Asn His Lys Phe Thr Val Phe Glu 180 185 190 Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu 195 200 205 Ser Tyr Asn Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Gln Ala Tyr 210 215 220 Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu 225 230 235 240 Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala 245 250 255 Ala Lys Pro Ala Ala Ala Ala Thr Ala Thr Ala Thr Ala Ala Val Gly 260 265 270 Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly Gly Tyr Lys Val 275 280 285

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Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val Pro Pro Ala Asp Lys
50 55 60
                                                                                                                       192
tac agg acg ttc gtc gca acc ttc ggc gcg gcc tcc aac aag gcc ttc
Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe
65 70 75 80
                                                                                                                       240
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Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser
                                                                                                                       288
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Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr
                                                                                                                       336
aag aca gcc gag ggc gcg acg cct gag gcc aag tac gac gcc tac gtc
Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val
                                                                                                                       384
gcc acc gta agc agc gcg ctc cgc atc atc gcc ggc acc ctc gag gtc Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val
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gag ctg cag gtc atc gag aag gtc gac gcc gcc ttc aag gtc gcc glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala
                                                                                                                       528
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agc tac aag ttc atc ggc gcc ctg gag gcc gcc gtc aag cag gcc tac
Ser Tyr Lys Phe Ile Gly Ala Leu Glu Ala Ala Val Lys Gln Ala Tyr
210 215 220
                                                                                                          672
gcc gcc acc gtc gcc acc gcg ggc gag gtc aag tac act gtc ttt gag
Ala Ala Thr Val Ala Thr Ala Gly Glu Val Lys Tyr Thr Val Phe Glu
225 230 240
                                                                                                          720
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245 250 255
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Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val Pro Pro Ala Asp Lys 50 55 60
Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe 65 70 75 80
Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser 90 95
Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr 100 105 110
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Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu
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Ser Tyr Lys Phe Ile Gly Ala Leu Glu Ala Ala Val Lys Gln Ala Tyr
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Ala Ala Thr Val Ala Thr Ala Gly Glu Val Lys Tyr Thr Val Phe Glu
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										gag Glu						144	
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Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val Pro Pro Ala Asp Lys 50 55 60

Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe 65 70 75 80

Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser 90 95

Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr 100 105 110

Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val 115 120 125

Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val 130 135 140

His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly 145 150 155 160

Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala 165 170 175

Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Phe Thr Val Phe Glu 180 185 190

Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu 195 200 205

Ser Tyr Asn Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Gln Ala Tyr 210 215 220 Page 101

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gaa tac atc caa Glu Tyr Ile Gln	cat aat ggt His Asn Gly 85	gtc gtc caa Val Val Gln 90	gaa agc tac tat Glu Ser Tyr Tyr	cga tac 288 Arg Tyr 95
gtt gca cga gaa Val Ala Arg Glu 100	caa tca tgo Gln Ser Cys	cga cga cca Arg Arg Pro 105	aat gca caa cgt Asn Ala Gln Arg 110	ttc ggt 336 Phe Gly
atc tca aac tat Ile Ser Asn Tyr 115	tgc caa att Cys Gln Ile	tac cca cca Tyr Pro Pro 120	aat gta aac aaa Asn Val Asn Lys 125	att cgt 384 Ile Arg
gaa gct ttg gct Glu Ala Leu Ala 130	caa acc cac Gln Thr His 135	Ser Ala Ile	gcc gtc att att Ala Val Ile Ile 140	ggc atc 432 Gly Ile
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Arg Asp Asn Gly Tyr Gln Pro Asn Tyr His Ala Val Asn Ile Val Gly
165 170 175
                                                                                                 528
tac agt aac gca caa ggt gtc gat tat tgg atc gta cga aac agt tgg
Tyr Ser Asn Ala Gln Gly Val Asp Tyr Trp Ile Val Arg Asn Ser Trp
180 185 190
                                                                                                 576
gat acc aat tgg ggt gat aat ggt tac ggt tat ttt gct gcc aac atc Asp Thr Asn Trp Gly Asp Asn Gly Tyr Gly Tyr Phe Ala Ala Asn Ile 195 200 205
                                                                                                 624
gat ttg atg atg att gaa gaa tat cca tat gtt gtc att ctc
Asp Leu Met Met Ile Glu Glu Tyr Pro Tyr Val Val Ile Leu
210 220
                                                                                                 666
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Ser Cys Trp Ala Phe Ser Gly Val Ala Ala Thr Glu Ser Ala Tyr Leu 35 40
Ala Tyr Arg Asn Gln Ser Leu Asp Leu Ala Glu Gln Glu Leu Val Asp 50 60
Cys Ala Ser Gln His Gly Cys His Gly Asp Thr Ile Pro Arg Gly Ile 65 70 75 80
Glu Tyr Ile Gln His Asn Gly Val Val Gln Glu Ser Tyr Tyr Arg Tyr
85 90 95
Val Ala Arg Glu Gln Ser Cys Arg Arg Pro Asn Ala Gln Arg Phe Gly
100 105 110
Ile Ser Asn Tyr Cys Gln Ile Tyr Pro Pro Asn Val Asn Lys Ile Arg
115 120 125
Glu Ala Leu Ala Gln Thr His Ser Ala Ile Ala Val Ile Ile Gly Ile
130 135 140
Lys Asp Leu Asp Ala Phe Arg His Tyr Asp Gly Arg Thr Ile Ile Gln
145 150 155 160
Arg Asp Asn Gly Tyr Gln Pro Asn Tyr His Ala Val Asn Ile Val Gly
165 170 175
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100H94~2.TXT
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Asp Thr Asn Trp Gly Asp Asn Gly Tyr Gly Tyr Phe Ala Ala Asn Ile 195 200 205
Asp Leu Met Met Ile Glu Glu Tyr Pro Tyr Val Val Ile Leu 210 215 220
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aaa cca ttc caa ttg gaa gcc gtt ttc gaa gcc aac caa aac aca aaa Lys Pro Phe Gln Leu Glu Ala Val Phe Glu Ala Asn Gln Asn Thr Lys 35 40 45
acc gct aaa att gaa atc aaa gcc tca atc gat ggt tta gaa gtt gat Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Glu Val Asp 50 55 60
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Leu Val Pro Gly Cys His Gly Ser Glu Pro Cys Ile Ile His Arg Gly 20 25 30
Lys Pro Phe Gln Leu Glu Ala Val Phe Glu Ala Asn Gln Asn Thr Lys 35 40 45
Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Glu Val Asp 50 55
Val Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Met Lys Cys Pro Leu 65 70 75 80
Val Lys Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys 85 90 95
Ile Ala Pro Lys Ser Glu Asn Val Val Val Thr Val Lys Val Met Gly 100 105 110
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cacaccaaag gtgaccatga ggtgaaggca gagcaggtta aggcaagtaa agaaatgggc 420
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Gly Pro Gly Thr Ile Lys Lys Ile Ser Phe Pro Glu Gly Leu Pro Phe 50 60
Lys Tyr Val Lys Asp Arg Val Asp Glu Val Asp His Thr Asn Phe Lys 65 70 75 80
Tyr Asn Tyr Ser Val Ile Glu Gly Gly Pro Ile Gly Asp Thr Leu Glu 85 90 95
Lys Ile Ser Asn Glu Ile Lys Ile Val Ala Thr Pro Asp Gly Gly Ser 100 105 110
Ile Leu Lys Ile Ser Asn Lys Tyr His Thr Lys Gly Asp His Glu Val 115 120 125
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Lys Pro Phe Gln Leu Glu Ala Leu Phe Glu Ala Asn Gln Asn Ser Lys
Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Glu Val Asp
Yal Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Met Lys Cys Pro Leu
80
Val Lys Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys
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Phleum pratense

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Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Ile Asn Ala Gly 35 40

Phe Lys Ala Ala Leu Ala Ala Ala Gly Val Pro Pro Ala Asp Lys 50 60

Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe 65 70 75 80

Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser 90 95

Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr 100 105 110

Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val 115 120 125

Ala Thr Val Ser Glu Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val 130 135 140

His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly 145 150 155 160

Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala 165 170 175

Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Phe Thr Val Phe Glu 180 185

Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu 195 200 205

Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Gln Ala Tyr 210 215 220

Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu 225 230 235 240

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100H94~2.TXT
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Cys Lys Tyr Gly Ser Leu Lys Pro Asn Cys Gly Asn Lys Val Val 20 25 30 Page 112

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Ser Tyr Gly Leu Thr Lys Gln Glu Lys Gln Asp Ile Leu Lys Glu His 35 40 45

Asn Asp Phe Arg Xaa Xaa Ala Arg Gly Leu Glu Thr Arg Gly Asn Pro 50 55 60

Gly Pro Gln Pro Pro Ala Lys Asn Met Lys Asn Leu Val Trp Asn Asp 65 70 75 80

Glu Leu Ala Tyr Val Ala Gln Val Trp Ala Asn Gln Cys Gln Tyr Gly 85 90 95

His Asp Thr Cys Arg Asp Val Ala Lys Tyr Gln Val Gly Gln Asn Val 100 105 110

Ala Leu Thr Gly Ser Thr Ala Ala Lys Tyr Asp Asp Pro Xaa Xaa Leu 115 120 125

Val Lys Met Trp Glu Asp Glu Val Lys Asp Tyr Asn Pro Lys Lys 130 135 140

Phe Ser Gly Asn Asp Phe Leu Lys Thr Gly His Tyr Thr Gln Met Val 145 150 155 160

Trp Ala Asn Thr Lys Glu Val Gly Cys Gly Ser Ile Lys Tyr Ile Gln
165 170 175

Glu Lys Trp His Lys His Tyr Leu Val Cys Asn Tyr Gly Pro Ser Gly 180 185 190

Asn Phe Asn Glu Glu Leu Xaa Xaa Thr Lys 195 200

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<222> (1)..(203)

<223> where xaa is any amino acid

<400> 118

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Ser Tyr Gly Leu Thr Lys Gln Glu Lys Gln Asp Ile Leu Lys Glu His 35 40 45

Asn Asp Phe Arg Xaa Xaa Ala Arg Gly Leu Glu Thr Arg Gly Asn Pro 50 60 Gly Pro Gln Pro Pro Ala Lys Asn Met Lys Asn Leu Val Trp Asn Asp 65 70 75 80 Glu Leu Ala Tyr Val Ala Gln Val Trp Ala Asn Gln Cys Gln Tyr Gly 85 90 95 His Asp Thr Cys Arg Asp Val Ala Lys Tyr Gln Val Gly Gln Asn Val 100 105 110 Ala Leu Thr Gly Ser Thr Ala Ala Lys Tyr Asp Asp Pro Xaa Xaa Leu 115 120 125 Val Lys Met Trp Glu Asp Glu Val Lys Asp Tyr Asn Pro Lys Lys 130 140 Phe Ser Gly Asn Asp Phe Leu Lys Thr Gly His Tyr Thr Gln Met Val 145 150 155 160 Trp Ala Asn Thr Lys Glu Val Gly Cys Gly Ser Ile Lys Tyr Ile Gln
165 170 175 Glu Lys Trp His Lys His Tyr Leu Val Cys Asn Tyr Gly Pro Ser Gly 180 185 190 Asn Phe Lys Asn Glu Glu Leu Xaa Xaa Thr Lys 195 200 <210> 119 <211> 201 <212> PRT Vespula <220> <221> MISC\_FEATURE <222> (1)..(201) where xaa is any amino acid <400> 119 Asn Asn Tyr Cys Lys Ile Lys Cys Leu Lys Gly Gly Val His Thr Ala 1 5 10 15 Cys Lys Tyr Gly Ser Leu Lys Pro Asn Cys Gly Asn Lys Val Val Val 20 25 30 Ser Tyr Gly Leu Thr Lys Gln Glu Lys Gln Asp Ile Leu Lys Glu His 45

Asn Asp Phe Arg Xaa Xaa Ala Arg Gly Leu Glu Thr Arg Gly Asn Pro

Page 114

Gly Pro Gln Pro Pro Ala Lys Asn Met Lys Asn Leu Val Trp Asn Asp 65 70 75 80

55

Glu Leu Ala Tyr Val Ala Gln Val Trp Ala Asn Gln Cys Gln Tyr Gly 85 90 95

His Asp Thr Cys Arg Asp Xaa Ala Lys Tyr Gln Val Gly Gln Asn Val 100 105 110

Ala Leu Thr Gly Ser Thr Ala Ala Lys Tyr Asp Asp Pro Xaa Xaa Leu 115 120 125

Val Lys Met Trp Glu Asp Glu Val Lys Asp Tyr Asn Pro Lys Lys 130 140

Phe Ser Gly Asn Phe Leu Lys Thr Gly His Tyr Thr Gln Met Val Trp 145 150 155 160

Ala Asn Thr Lys Glu Val Gly Cys Gly Ser Ile Lys Phe Ile Gln Glu 165 170 175

Lys Trp His Lys His Tyr Leu Val Cys Asn Tyr Gly Pro Ser Gly Asn 180 185 190

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vespula

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Tyr Gly Leu Thr Lys Gln Glu Lys Gln Asp Ile Leu Lys Glu His Asn 35 40 45

Asp Phe Arg Xaa Xaa Ala Arg Gly Leu Glu Thr Arg Gly Asn Pro Gly 50 55 60

Pro Gln Pro Pro Ala Lys Asn Met Lys Asn Leu Val Trp Asp Glu Leu Roll Ala Tyr Xaa Ala Gln Val Trp Ala Asn Gln Cys Gln Tyr Gly His Asp Thr Cys Arg Asp Val Ala Lys Tyr Gln Val Gly Gln Asn Val Ala Leu Thr Gly Ser Thr Ala Ala Tyr Asp Pro Xaa Xaa Leu Val Lys Met Trp Glu Asp Glu Val Lys Asp Tyr Asn Pro Lys Lys Lys Phe Ser Asn Phe 130 Cys Gly Ser Ile Lys Tyr Ile Gln Glu Trp Ala Asn Thr Lys Glu Val Lys Cys Gly Ser Ile Lys Tyr Ile Gln Glu Trp His Lys His Tyr Leu Val Cys Asn Tyr Gly Pro Ser Gly Asn Phe Asn Glu Glu Leu Xaa Xaa Thr Lys

<210> 121 <211> 198 <212> PRT <213> Vespula <220>

<221> MISC\_FEATURE <222> (1)..(198)

<223> where Xaa can be any amino acid

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Ser Tyr Gly Leu Thr Lys Glu Lys Gln Asp Ile Leu Lys Glu His Asn
Asp Phe Arg Xaa Xaa Ala Arg Gly Leu Glu Thr Arg Gly Asn Pro Gly
Glo Gln Pro Pro Ala Lys Asn Met Lys Asn Leu Val Trp Asn Asp Glu 80

Leu Ala Tyr Val Ala Gln Val Trp Ala Asn Gln Cys Gln Tyr Gly His 85 90 95 Asp Thr Cys Arg Asp Val Ala Lys Tyr Val Gly Gln Asn Val Ala Leu 100 105 110

Thr Gly Ser Thr Ala Lys Tyr Asp Pro Xaa Xaa Leu Val Lys Met Trp 115 120 125

Glu Asp Glu Val Lys Asp Tyr Asn Pro Lys Lys Phe Ser Gly Asn 130 140

Asp Phe Leu Lys Thr Gly His Tyr Thr Gln Met Val Trp Ala Asn Thr 145 150 155

Lys Glu Val Gly Cys Gly Ser Ile Lys Tyr Ile Gln Glu Lys Trp His
165 170 175

Lys His Tyr Leu Val Cys Asn Tyr Gly Pro Ser Gly Asn Phe Asn Glu 180 185 190

Glu Leu Xaa Xaa Thr Lys 195

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MISC\_FEATURE (1)..(192) where Xaa is any amino acid

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Thr Lys Gln Glu Lys Gln Asp Ile Leu Lys Glu His Asn Asp Phe Arg 35 40 45

Xaa Xaa Ala Arg Gly Leu Glu Thr Arg Gly Asn Pro Gly Pro Gln Pro 50 60

Pro Ala Lys Asn Met Lys Asn Leu Val Trp Asp Glu Leu Ala Tyr Thr 65 70 75 80

Ala Gln Val Trp Ala Asn Gln Cys Gln Tyr Gly His Asp Thr Cys Arg 85 90 95 Page 117

Asp Val Ala Lys Tyr Val Gly Gln Asn Val Ala Leu Thr Gly Ser Thr  $100 \hspace{1cm} 105 \hspace{1cm} 110$ Ala Ala Lys Tyr Asp Pro Xaa Xaa Leu Val Lys Met Trp Glu Asp Glu 115 125 Val Lys Asp Tyr Asn Pro Lys Lys Phe Ser Asn Phe Leu Lys Gly 130 140 His Tyr Thr Gln Met Val Trp Ala Asn Thr Lys Glu Val Gly Cys Gly 145 150 155 160 Ser Ile Lys Tyr Ile Gln Xaa Lys Trp His Lys His Tyr Leu Val Cys 165 170 175 Asn Tyr Gly Pro Ser Gly Asn Phe Asn Glu Glu Leu Xaa Xaa Thr Lys 180 185 190

<400> 123

Asn Tyr Cys Lys Ile Lys Cys Leu Lys Gly Gly Val His Thr Ala Cys 1 10 15

Lys Tyr Gly Thr Ser Lys Pro Asn Cys Gly Val Val Tyr Gly Leu Thr 20 25 30

Glu Lys Gln Thr Ile Leu Lys His Asn Asp Phe Arg Xaa Xaa Ala Xaa 35 40 45

Gly Leu Glu Thr Arg Gly Asn Pro Gly Pro Gln Pro Pro Ala Lys Asn 50 60

Met Asn Leu Val Trp Asn Asp Glu Leu Ala Xaa Ala Gln Val Trp Ala 65 70 75 80

Gln Cys Asn Gln Tyr Gly His Asp Thr Cys Lys Asp Lys Tyr Val Gly
85 90 95

Gln Asn Ile Ala Ile Thr Ala Ala Xaa Asp Pro Xaa Xaa Leu Val Lys 100 105 110

Met Trp Glu Glu Val Lys Asp Phe Asn Pro Trp Ser Asn Lys Thr Gly Page 118

<sup>123</sup> 170 <210>

<sup>&</sup>lt;211>

<sup>&</sup>lt;212> PRT

Vespula

<sup>&</sup>lt;220>

<sup>&</sup>lt;221>

MISC\_FEATURE (1)..(170) where Xaa is any amino acid

125

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Xaa Lys Tyr Val Asp Trp His Tyr Leu Val Cys Asn Tyr Gly Pro Ser 145 150 155 160

Gly Asn Phe Asn Glu Leu Tyr Xaa Thr Lys

<210> 124

<211> 166

<212> PRT

<213> Vespula

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<221> MISC\_FEATURE <222>

115

(1)..(166) where Xaa is any amino acid

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Tyr Gly Thr Ser Lys Pro Asn Cys Gly Asn Val Val Ser Tyr Gly Val 20 25 30

Thr Glu Lys Gln Phe Ile Leu Lys His Asn Asp Phe Arg Xaa Xaa Ala 35 40 45

Arg Gly Leu Glu Thr Arg Gly Asn Pro Gly Pro Gln Pro Pro Ala Lys 50 55 60

Asn Met Asn Leu Val Trp Asn Glu Leu Ala Ile Ala Gln Thr Trp Ala 65 70 75 80

Gln Cys Tyr Gly His Asp Thr Cys Lys Asp Lys Tyr Asn Val Gly Gln
85
90
95

Asn Ile Ala Val Xaa Gly Ser Thr Ala Ala Tyr Thr Leu Val Lys Trp 100 105

Glu Glu Val Lys Asp Xaa Asn Pro Trp Gly Asn Xaa Xaa Lys Gly His 115 120 125

Tyr Thr Gln Met Val Trp Ala Thr Lys Glu Ile Gly Cys Gly Ser Ile 130 135 140

Lys Tyr Val Trp His Tyr Leu Val Cys Asn Tyr Gly Pro Gly Asn Phe 145 150 155 160

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<222> (1)..(156)

where Xaa is any amino acid

<400> 125

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Dermatophagoides pteronyssinus

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Dermatophagoides pteronyssinus

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Lys Pro Phe Gln Leu Glu Ala Val Phe Glu Ala Asn Gln Asn Ser Lys 35 40 45

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Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Glu Val Asp 50 60

Val Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Met Lys Cys Pro Leu 65 70 75 80

Val Lys Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys
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Dermatophagoides farinae

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Asp Gly Val Glu Ile Asp Val Pro Gly Ile Asp Asn Asn Leu Cys His 70 75 80

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Thr Trp Asn Val Pro Arg Ile Ala Pro Lys Ser Glu Asn Val Val 100 105 110

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Dermatophagoides pteronyssinus

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Met Ser Ala Glu Ala Phe Glu His Leu Lys Thr Gln Phe Asp Leu Asn 90 95

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Ala Glu Thr Tyr Ala Cys Ser Ile Asn Ser Val Ser Leu Pro Ser Glu 100 105 110

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Leu Asp Leu Arg Ser Leu Arg Thr Val Thr Pro Ile Arg Met Gln Gly 115 125 Gly Cys Gly Ser Cys Trp Ala Phe Ser Gly Val Ala Ser Thr Glu Ser 130 135 Ala Tyr Leu Ala Tyr Arg Asn Met Ser Leu Asp Leu Ala Glu Gln Glu 145 . 155 . 160 Leu Val Asp Cys Ala Ser Gln Asn Gly Cys His Gly Asp Thr Ile Pro 165 170 175 Arg Gly Ile Glu Tyr Ile Gln Gln Asn Gly Val Val Gln Glu His Tyr 180 185 190 Tyr Pro Tyr Val Ala Arg Glu Gln Ser Cys His Arg Pro Asn Ala Gln 195 205 Arg Tyr Gly Leu Lys Asn Tyr Cys Gln Ile Ser Pro Pro Asp Ser Asn 210 220 Lys Ile Arg Gln Ala Leu Thr Gln Thr His Thr Ala Val Ala Val Ile 225 230 235 240 Ile Gly Ile Lys Asp Leu Asn Ala Phe Arg His Tyr Asp Gly Arg Thr 245 250 255 Ile Met Gln His Asp Asn Gly Tyr Gln Pro Asn Tyr His Ala Val Asn 260 265 270 Ile Val Gly Tyr Gly Asn Thr Gln Gly Val Asp Tyr Trp Ile Val Arg 275 280 285 Asn Ser Trp Asp Thr Thr Trp Gly Asp Asn Gly Tyr Gly Tyr Phe Ala 290 295 300 Ala Asn Ile Asn Leu Met Met Ile Glu Gln Tyr Pro Tyr Val Val Met 305 310 315 320

Leu

<sup>&</sup>lt;210> 181

<sup>&</sup>lt;211> 246 <212> PRT

<sup>&</sup>lt;213> Euroglyphus maynei

<sup>&</sup>lt;400> 181

Lys Asn Gln Phe Leu Met Asn Ala Asn Ala Phe Glu Gln Leu Lys Thr 1 10 15

Gln Phe Asp Leu Asn Ala Glu Thr Tyr Ala Cys Ser Ile Asn Ser Val 20 25 30 Ser Leu Pro Ser Glu Leu Asp Leu Arg Ser Leu Arg Thr Val Thr Pro 35 40 45 Ala Ser Thr Glu Ser Ala Tyr Leu Ala Tyr Arg Asn Met Ser Leu Asp 65 70 75 80 Leu Ala Glu Gln Glu Leu Val Asp Cys Ala Ser Gln Asn Gly Cys His 85 90 95 Gly Asp Thr Ile Pro Arg Gly Ile Glu Tyr Ile Gln Gln Asn Gly Val 100 105 110 Val Gln Glu His Tyr Tyr Pro Tyr Val Ala Arg Glu Gln Ser Cys His 115 120 125 Arg Pro Asn Ala Gln Arg Tyr Gly Leu Lys Asn Tyr Cys Gln Ile Ser 130 135 140 Pro Pro Asp Ser Asn Lys Ile Arg Gln Ala Leu Thr Gln Thr His Thr 145 150 155 160 Ala Val Ala Val Ile Ile Gly Ile Lys Asp Leu Asn Ala Phe Arg His 165 170 175 Tyr Asp Gly Arg Thr Ile Met Gln His Asp Asn Gly Tyr Gln Pro Asn 180 185 190 Tyr His Ala Val Asn Ile Val Gly Tyr Gly Asn Thr Gln Gly Val Asp 195 200 205 Tyr Trp Ile Val Arg Asn Ser Trp Asp Thr Trp Gly Asp Asn Gly 210 220 Tyr Gly Tyr Phe Ala Ala Asn Ile Asn Leu Met Met Ile Glu Gln Tyr 225 230 235 240 Pro Tyr Val Val Met Leu 245

<sup>182</sup> 327 <210> <211>

**PRT** 

Euroglyphus maynei

<sup>&</sup>lt;400> 182

100H94~2.TXT Lys His Leu Ser Thr Ile Met Lys Ile Ile Leu Ala Ile Ala Ser Leu 1 10 15 Leu Val Leu Ser Ala Val Tyr Ala Arg Pro Ala Ser Ile Lys Thr Phe 20 25 30 Glu Glu Phe Lys Lys Ala Phe Asn Lys Ser Tyr Ala Thr Pro Glu Lys
35 40 45 Glu Glu Val Ala Arg Lys Asn Phe Leu Glu Ser Leu Lys Tyr Val Glu 50 55 60 Ser Asn Lys Gly Ala Ile Asn His Leu Ser Asp Leu Ser Leu Asp Glu 65 70 75 80 Phe Lys Asn Gln Phe Leu Met Asn Ala Asn Ala Phe Glu Gln Leu Lys 85 90 95 Thr Gln Phe Asp Leu Asn Ala Glu Thr Tyr Ala Cys Ser Ile Asn Ser 100 105 110 Val Ser Leu Pro Ser Glu Leu Asp Leu Arg Ser Leu Arg Thr Val Thr 115 120 125 Pro Ile Arg Met Gln Gly Gly Cys Gly Ser Cys Trp Ala Phe Ser Gly 130 140 Val Ala Ser Thr Glu Ser Ala Tyr Leu Ala Tyr Arg Asn Met Ser Leu 145 150 155 160 Asp Leu Ala Glu Gln Glu Leu Val Asp Cys Ala Ser Gln Asn Gly Cys 165 170 175 His Gly Asp Thr Ile Pro Arg Gly Ile Glu Tyr Ile Gln Gln Asn Gly 180 185 190 Val Val Gln Glu His Tyr Tyr Pro Tyr Val Ala Arg Glu Gln Ser Cys 195 200 205 His Arg Pro Asn Ala Gln Arg Tyr Gly Leu Lys Asn Tyr Cys Gln Ile 210 215 220 Ser Pro Pro Asp Ser Asn Lys Ile Arg Gln Ala Leu Thr Gln Thr His 225 230 235 240 Thr Ala Val Ala Val Ile Ile Gly Ile Lys Asp Leu Asn Ala Phe Arg 245 250 255 His Tyr Asp Gly Arg Thr Ile Met Gln His Asp Asn Gly Tyr Gln Pro  $260 \hspace{1cm} 265 \hspace{1cm} 270$  100H94~2.TXT
Asn Tyr His Ala Val Asn Ile Val Gly Tyr Gly Asn Thr Gln Gly Val
275 280 285

Asp Tyr Trp Ile Val Arg Asn Ser Trp Asp Thr Trp Gly Asp Asn 290 295 300

Gly Tyr Gly Tyr Phe Ala Ala Asn Ile Asn Leu Met Met Ile Glu Gln 305 310 315

Tyr Pro Tyr Val Val Ile Leu 325

<210> 183 <211> 321

<212>

Dermatophagoides farinae

<400> 183

Met Lys Phe Val Leu Ala Ile Ala Ser Leu Leu Ala Leu Ser Thr Val  $1 \hspace{1cm} 5 \hspace{1cm} 10 \hspace{1cm} 15$ 

Tyr Ala Arg Pro Ala Ser Ile Lys Thr Phe Glu Glu Phe Lys Lys Ala 20 25 30

Phe Asn Lys Asn Tyr Ala Thr Val Glu Glu Glu Val Ala Arg Lys 35 40 45

Asn Phe Leu Glu Ser Leu Lys Tyr Val Glu Ala Asn Lys Gly Ala Ile 50 60

Asn His Leu Ser Asp Leu Ser Leu Asp Glu Phe Lys Asn Arg Phe Leu 65 70 75 80

Met Ser Ala Glu Ala Phe Glu Gln Leu Lys Thr Gln Phe Asp Leu Asn 85 90 95

Ala Glu Thr Ser Ala Cys Arg Ile Asn Ser Val Asn Val Pro Ser Glu 100 105 110

Leu Asp Leu Arg Ser Leu Arg Thr Val Thr Pro Ile Arg Met Gln Gly 115 125

Gly Cys Gly Ser Cys Trp Ala Phe Ser Gly Val Ala Ala Thr Glu Ser 130 135 140

Ala Tyr Leu Ala Tyr Arg Asn Thr Ser Leu Asp Leu Ser Glu Gln Glu 145 150 155 160

Leu Val Asp Cys Ala Ser Gln His Gly Cys His Gly Asp Thr Ile Pro 165 170 175

Arg Gly Ile Glu Tyr Ile Gln Gln Asn Gly Val Val Glu Glu Arg Ser Page 142

Tyr Pro Tyr Val Ala Arg Glu Gln Arg Cys Arg Arg Pro Asn Ser Gln 195 200 205 His Tyr Gly Ile Ser Asn Tyr Cys Gln Ile Tyr Pro Pro Asp Val Lys 210 220 Gln Ile Arg Glu Ala Leu Thr Gln Thr His Thr Ala Ile Ala Val Ile 225 230 235 240 Ile Gly Ile Lys Asp Leu Arg Ala Phe Gln His Tyr Asp Gly Arg Thr 245 250 255 Ile Ile Gln His Asp Asn Gly Tyr Gln Pro Asn Tyr His Ala Val Asn 260 265 270 Ile Val Gly Tyr Gly Ser Thr Gln Gly Asp Asp Tyr Trp Ile Val Arg 275 280 285 Asn Ser Trp Asp Thr Thr Trp Gly Asp Ser Gly Tyr Gly Tyr Phe Gln 290 295 300 Ala Gly Asn Asn Leu Met Met Ile Glu Gln Tyr Pro Tyr Val Val Ile 305 310 315 320

Met

<210> <211> 184 211

Euroglyphus maynei

<400>

Thr Tyr Ala Cys Ser Ile Asn Ser Val Ser Leu Pro Ser Glu Leu Asp 10 15

Leu Arg Ser Leu Arg Thr Val Thr Pro Ile Arg Met Gln Gly Gly Cys 20 . 25 30

Gly Ser Cys Trp Ala Phe Ser Gly Val Ala Ser Thr Glu Ser Ala Tyr 35 40 45

Leu Ala Tyr Arg Asn Met Ser Leu Asp Leu Ala Glu Gln Glu Leu Val 50 60

Asp Cys Ala Ser Gln Asn Gly Cys His Gly Asp Thr Ile Pro Arg Gly 65 70 75 80

Ile Glu Tyr Ile Gln Gln Asn Gly Val Val Gln Glu His Tyr Tyr Pro 85 90 95 Page 143

Tyr Val Ala Arg Glu Gln Ser Cys His Arg Pro Asn Ala Gln Arg Tyr Gly Leu Lys Asn Tyr Cys Gln Ile Ser Pro Pro Asp Ser Asn Lys Ile Arg Gln Ala Leu Thr Gln Thr His Thr Ala Val Ala Val Ile Ile Gly Ile Lys Asp Leu Asn Ala Phe Arg His Tyr Asp Gly Arg Thr Ile Met 145

Gln His Asp Asn Gly Tyr Gln Pro Asn Tyr His Ala Val Asn Ile Val Asn Ile Val Gly Tyr Gly Asn Thr Gln Gly Val Asp Tyr Trp Ile Val Arg Asn Ser Trp Asp Thr Thr Trp Gly Asp Asn Gly Tyr Gly Tyr Gly Tyr Phe Ala Ala Asn Ile Asn Leu 210

<400> 185

Ser Ala Cys Arg Ile Asn Ser Val Asn Val Pro Ser Glu Leu Asp Leu 10 15

Arg Ser Leu Arg Thr Val Thr Pro Ile Arg Met Gln Gly Gly Cys Gly 20 25 30

Ser Cys Trp Ala Phe Ser Gly Val Ala Ala Thr Glu Ser Ala Tyr Leu 35 40 45

Ala Tyr Arg Asn Thr Ser Leu Asp Leu Ser Glu Gln Glu Leu Val Asp 50 60

Cys Ala Ser Gln His Gly Cys His Gly Asp Thr Ile Pro Arg Gly Ile 65 70 75 80

Glu Tyr Ile Gln Gln Asn Gly Val Val Glu Glu Arg Ser Tyr Pro Tyr 85 90 95

Val Ala Arg Glu Gln Gln Cys Arg Arg Pro Asn Ser Gln His Tyr Gly 100 105 110

<sup>&</sup>lt;210> 185

<sup>&</sup>lt;211> 210

<sup>&</sup>lt;212> PRT

<sup>&</sup>lt;213> Dermatophagoides farinae

Ile Ser Asn Tyr Cys Gln Ile Tyr Pro Pro Asp Val Lys Gln Ile Arg 115 120 125

Glu Ala Leu Thr Gln Thr His Thr Ala Ile Ala Val Ile Ile Gly Ile 130 135 140

Lys Asp Leu Arg Ala Phe Gln His Tyr Asp Gly Arg Thr Ile Ile Gln 145 150 155 160

His Asp Asn Gly Tyr Gln Pro Asn Tyr His Ala Val Asn Ile Val Gly
165 170 175

Tyr Gly Ser Thr Gln Gly Val Asp Tyr Trp Ile Val Arg Asn Ser Trp 180 185 190

Asp Thr Trp Gly Asp Ser Gly Tyr Gly Tyr Phe Gln Ala Gly Asn 195 200 205

Asn Leu 210

<210> 186 <211> 312

<211> 312 <212> PRT

<213> Phleum pratense

<400> 186

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Val Ala Gly Pro Ala Gly Ser Tyr Ala Ala Asp Leu Gly Tyr Gly Pro 20 25 30

Ala Thr Pro Ala Ala Pro Ala Ala Gly Tyr Thr Pro Ala Thr Pro Ala 40 45

Ala Pro Ala Gly Ala Glu Pro Ala Gly Lys Ala Thr Thr Glu Glu Gln 50 55 60

Lys Leu Ile Glu Lys Ile Asn Ala Gly Phe Lys Ala Ala Leu Ala Ala 65 70 75 80

Ala Ala Gly Val Pro Pro Ala Asp Lys Tyr Arg Thr Phe Val Ala Thr 85 90 95

Phe Gly Ala Ala Ser Asn Lys Ala Phe Ala Glu Gly Leu Ser Gly Glu 100 105 110

Pro Lys Gly Ala Ala Glu Ser Ser Ser Lys Ala Ala Leu Thr Ser Lys 115 120 125 100H94~2.TXT Leu Asp Ala Ala Tyr Lys Leu Ala Tyr Lys Thr Ala Glu Gly Ala Thr 130 135 140 Pro Glu Ala Lys Tyr Asp Ala Tyr Val Ala Thr Val Ser Glu Ala Leu 145 150 155 160 Arg Ile Ile Ala Gly Thr Leu Glu Val His Ala Val Lys Pro Ala Ala 165 170 175 Glu Glu Val Lys Val Ile Pro Ala Gly Glu Leu Gln Val Ile Glu Lys 180 185 Val Asp Ala Ala Phe Lys Val Ala Ala Thr Ala Ala Asn Ala Ala Pro 195 200 205 Ala Asn Asp Lys Phe Thr Val Phe Glu Ala Ala Phe Asn Asp Ala Ile 210 215 220 Lys Ala Ser Thr Gly Gly Ala Tyr Glu Ser Tyr Lys Phe Ile Pro Ala 225 230 235 Leu Glu Ala Ala Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Thr Ala 245 250 255 Pro Glu Val Lys Tyr Thr Val Phe Glu Thr Ala Leu Lys Lys Ala Ile 260 265 270 Thr Ala Met Ser Glu Ala Gln Lys Ala Ala Lys Pro Ala Ala Ala Ala 275 280 285 Thr Ala Thr Ala Thr Ala Ala Val Gly Ala Ala Thr Gly Ala Ala Thr 290 295 300

Ala Ala Thr Gly Gly Tyr Lys Val 305 310

<210> <211> <212> 187 312

Phleum pratense

<400> 187

Met Ala Val His Gln Tyr Thr Val Ala Leu Phe Leu Ala Val Ala Leu 1 5 10 15

Val Ala Gly Pro Ala Ala Ser Tyr Ala Ala Asp Leu Gly Tyr Gly Pro
20 25 30

Ala Thr Pro Ala Ala Pro Ala Ala Gly Tyr Thr Pro Ala Thr Pro Ala 35 40 45

Ala Pro Ala Glu Ala Ala Pro Ala Gly Lys Ala Thr Thr Glu Glu Gln

55

Lys Leu Ile Glu Lys Ile Asn Ala Gly Phe Lys Ala Ala Leu Ala Ala 65 70 75 80 Ala Ala Gly Val Gln Pro Ala Asp Lys Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe Ala Glu Gly Leu Ser Gly Glu 100 105 110 Pro Lys Gly Ala Ala Glu Ser Ser Lys Ala Ala Leu Thr Ser Lys 115 120 125 Leu Asp Ala Ala Tyr Lys Leu Ala Tyr Lys Thr Ala Glu Gly Ala Thr 130 140 Pro Glu Ala Lys Tyr Asp Ala Tyr Val Ala Thr Leu Ser Glu Ala Leu 145 150 155 160 Arg Ile Ile Ala Gly Thr Leu Glu Val His Ala Val Lys Pro Ala Ala 165 170 175 Glu Glu Val Lys Val Ile Pro Ala Gly Glu Leu Gln Val Ile Glu Lys 180 185 Val Asp Ala Ala Phe Lys Val Ala Ala Thr Ala Ala Asn Ala Ala Pro 195 200 205 Ala Asn Asp Lys Phe Thr Val Phe Glu Ala Ala Phe Asn Asp Ala Ile 210 215 220 Lys Ala Ser Thr Gly Gly Ala Tyr Glu Ser Tyr Lys Phe Ile Pro Ala 225 230 235 240 Leu Glu Ala Ala Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Thr Ala 245 250 255 Pro Glu Val Lys Tyr Thr Val Phe Glu Thr Ala Leu Lys Lys Ala Ile 260 265 270 Thr Ala Met Ser Glu Ala Gln Lys Ala Ala Lys Pro Ala Ala Ala Ala 275 280 285 Thr Ala Thr Ala Thr Ala Ala Val Gly Ala Ala Thr Gly Ala Ala Thr 290 295 300 Ala Ala Thr Gly Gly Tyr Lys Val 305 310

<210> 188

<211> 286

<212> PRT

<213> Phleum pratense

<400> 188

Ala Asp Leu Gly Tyr Gly Pro Ala Thr Pro Ala Ala Pro Ala Ala Gly 10 10

Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Asp Ala Ala Gly 20 25 30

Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Ile Asn Ala Gly 35 40 45

Phe Lys Ala Ala Leu Ala Gly Ala Gly Val Gln Pro Ala Asp Lys Tyr 50 55 60

Arg Thr Phe Val Ala Thr Phe Gly Pro Ala Ser Asn Lys Ala Phe Ala 65 70 75 80

Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Lys 85 90 95

Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr Lys 100 105

Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val Ala 115 120 125

Thr Leu Ser Glu Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val His 130 135 140

Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly Glu 145 150 155 160

Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala Thr 165 170 175

Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Phe Thr Val Phe Glu Ala 180 185 190

Ala Phe Asn Asp Glu Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu Ser 195 200 205

Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Gln Ala Tyr Ala 210 215 220

Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu Thr 225 230 235 240

Ala Leu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Gln Lys Ala Ala 245 250 255 Page 148 Lys Pro Ala Ala Ala Ala Thr Ala Thr Ala Thr Ala Ala Val Gly Ala 260 265 270

Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly Gly Tyr Lys Val 275 280 285

<210> 189 <211> 333

<212> PRT

<213> Poa pratensis

<400> 189

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Val Ala Gly Pro Ala Ala Ser Tyr Ala Ala Asp Val Gly Tyr Gly Ala 20 25 30

Pro Ala Thr Leu Ala Thr Pro Ala Thr Pro Ala Ala Pro Ala Ala Gly
35 40 45

Tyr Thr Pro Ala Ala Pro Ala Gly Ala Ala Pro Lys Ala Thr Thr Asp 50 55 60

Glu Gln Lys Leu Ile Glu Lys Ile Asn Ala Gly Phe Lys Ala Ala Val 65 70 75 80

Ala Ala Ala Gly Val Pro Ala Val Asp Lys Tyr Lys Thr Phe Val 85 90 95

Ala Thr Phe Gly Thr Ala Ser Asn Lys Ala Phe Ala Glu Ala Leu Ser 100 105 110

Thr Glu Pro Lys Gly Ala Ala Ala Ala Ser Ser Asn Ala Val Leu Thr 115 120 125

Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr Lys Ser Ala Glu Gly 130 135 140

Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val Ala Thr Leu Ser Glu 145 150 155 160

Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val His Ala Val Lys Pro 165 170 175

Ala Gly Glu Glu Val Lys Ala Ile Pro Ala Gly Glu Leu Gln Val Ile 180 185 190

Asp Lys Val Asp Ala Ala Phe Lys Val Ala Ala Thr Ala Ala Asn Ala 195 200 205

Ala Pro Ala Asn Asp Lys Phe Thr Val Phe Glu Ala Ala Phe Asn Asp 210 215 220

Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Gln Ser Tyr Lys Phe Ile 225 230 235 240

Pro Ala Leu Glu Ala Ala Val Lys Gln Ser Tyr Ala Ala Thr Val Ala 245 250 255

Thr Ala Pro Ala Val Lys Tyr Thr Val Phe Glu Thr Ala Leu Lys Lys 260 265 270

Ala Ile Thr Ala Met Ser Gln Ala Gln Lys Ala Ala Lys Pro Ala Ala 275 280 285

Ala Val Thr Ala Thr Ala Thr Gly Ala Val Gly Ala Ala Thr Gly Ala 290 295 300

Val Gly Ala Ala Thr Gly Ala Ala Thr Ala Ala Ala Gly Gly Tyr Lys 305 310 315 320

Thr Gly Ala Ala Thr Pro Thr Ala Gly Gly Tyr Lys Val 325 330

Met Ala Val Gln Lys Tyr Thr Val Ala Leu Phe Leu Val Ala Leu Val 1 5 10 15

Val Gly Pro Ala Ala Ser Tyr Ala Ala Asp Leu Ser Tyr Gly Ala Pro 20 25 30

Ala Thr Pro Ala Ala Pro Ala Ala Gly Tyr Thr Pro Ala Ala Pro Ala 35 40 45

Gly Ala Ala Pro Lys Ala Thr Thr Asp Glu Gln Lys Met Ile Glu Lys
50 60

Ile Asn Val Gly Phe Lys Ala Ala Val Ala Ala Ala Gly Gly Val Pro 65 70 75 80

Ala Ala Asn Lys Tyr Lys Thr Phe Val Ala Thr Phe Gly Ala Ala Ser 85 90 95

Asn Lys Ala Phe Ala Glu Ala Leu Ser Thr Glu Pro Lys Gly Ala Ala 100 105 110

<sup>&</sup>lt;210> 190

<sup>&</sup>lt;211> 307

<sup>&</sup>lt;212> PRT

<sup>&</sup>lt;213> Poa pratensis

<sup>&</sup>lt;400> 190

Val Asp Ser Ser Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr 115 120 125

Lys Leu Ala Tyr Lys Ser Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr 130 135 140

Asp Asp Tyr Val Ala Thr Leu Ser Glu Ala Leu Arg Ile Ile Ala Gly 145 150 155 160

Thr Leu Glu Val His Gly Val Lys Pro Ala Ala Glu Glu Val Lys Ala 165 170 175

Thr Pro Ala Gly Glu Leu Gln Val Ile Asp Lys Val Asp Ala Ala Phe 180 185 190

Lys Val Ala Ala Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Phe 195 200 205

Thr Val Phe Glu Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly 210 215 220

Gly Ala Tyr Gln Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val 225 230 235 240

Lys Gln Ser Tyr Ala Ala Thr Val Ala Thr Ala Pro Ala Val Lys Tyr 245 250 255

Thr Val Phe Glu Thr Ala Leu Lys Lys Ala Ile Thr Ala Met Ser Gln 260 265 270

Ala Gln Lys Ala Ala Lys Pro Ala Ala Ala Ala Thr Gly Thr Ala Thr 275 280 285

Ala Ala Val Gly Ala Ala Thr Gly Ala Ala Thr Ala Ala Gly Gly 290 295 300

Tyr Lys Val 305

191 276 <210> <211>

PRT

<213> Phleum pratense

<400> 191

Ala Asp Leu Gly Tyr Gly Gly Pro Ala Thr Pro Ala Ala Pro Ala Glu 1 5 10 15

Ala Ala Pro Ala Gly Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu 20 25 30

Lys Ile Asn Asp Gly Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val

Pro Pro Ala Asp Lys Tyr Lys Thr Phe Val Ala Thr Phe Gly Ala Ala 50 55 60 Ser Asn Lys Ala Phe Ala Glu Gly Leu Ser Ala Glu Pro Lys Gly Ala 65 70 75 80 Ala Glu Ser Ser Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala 85 90 95 Tyr Lys Leu Ala Tyr Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys 100 105 110 Tyr Asp Ala Tyr Val Ala Thr Leu Ser Glu Ala Leu Arg Ile Ile Ala 115 120 125 Gly Thr Leu Glu Val His Ala Val Lys Pro Ala Ala Glu Glu Val Lys 130 135 140 Val Ile Pro Ala Gly Glu Leu Gln Val Ile Glu Lys Val Asp Ser Ala 145 150 155 160 Phe Lys Val Ala Ala Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys 165 170 175 Phe Thr Val Phe Glu Ala Ala Phe Asn Asn Ala Ile Lys Ala Ser Thr 180 185 190 Gly Gly Ala Tyr Glu Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala 195 200 205 Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys 210 215 220 Tyr Thr Val Phe Glu Thr Ala Leu Lys Lys Ala Ile Thr Ala Met Ser 225 230 235 240 Glu Ala Gln Lys Ala Ala Lys Pro Ala Thr Glu Ala Thr Ala Thr Ala 245 250 255 Thr Ala Ala Val Gly Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly 260 265 270 Gly Tyr Lys Val 275

<sup>&</sup>lt;210> 192

<sup>&</sup>lt;211> 276

<sup>&</sup>lt;212> PRT

<sup>&</sup>lt;213> Phleum pratense

<400> 192

Ala Asp Leu Gly Tyr Gly Gly Pro Ala Thr Pro Ala Ala Pro Ala Glu 1 5 10 15 Ala Ala Pro Ala Gly Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu 20 25 30 Lys Ile Asn Asp Gly Phe Lys Ala Ala Leu Ala Ala Ala Gly Val 35 40 45 Pro Pro Ala Asp Lys Tyr Lys Thr Phe Val Ala Thr Phe Gly Ala Ala 50 55 60 Ser Asn Lys Ala Phe Ala Glu Gly Leu Ser Ala Glu Pro Lys Gly Ala 65 70 75 80 Ala Glu Ser Ser Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala 85 90 95 Tyr Lys Leu Ala Tyr Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys 100 105 110 Tyr Asp Ala Tyr Val Ala Thr Leu Ser Glu Ala Leu Arg Ile Ile Ala 115 120 125 Gly Thr Leu Glu Val His Ala Val Lys Pro Ala Ala Glu Glu Val Lys 130 135 140 Val Ile Pro Ala Gly Glu Leu Gln Val Ile Glu Lys Val Asp Ser Ala 145 150 155 160 Phe Lys Val Ala Ala Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys 165 170 175 Phe Thr Val Phe Glu Ala Ala Phe Asn Asn Ala Ile Lys Ala Ser Thr 180 185 190 Gly Gly Ala Tyr Glu Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala 195 200 205 Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys 210 215 220 Tyr Thr Val Phe Glu Thr Ala Leu Lys Lys Ala Ile Thr Ala Met Ser 225 230 235 240 Glu Ala Gln Lys Ala Ala Lys Pro Ala Ala Ala Ala Thr Ala Thr Ala 245 250 255 Thr Ser Ala Val Gly Ala Ala Thr Gly Ala Thr Thr Ala Ala Ala Gly 260 265 270 Page 153

Gly Tyr Lys Val 275

<210> 193

<211> 276

<212> PRT <213> Phleum pratense

<400> 193

Ala Asp Leu Gly Tyr Gly Gly Pro Ala Thr Pro Ala Ala Pro Ala Glu 1 10 15

Ala Ala Pro Ala Gly Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu 20 25 30

Lys Ile Asn Asp Gly Phe Lys Ala Ala Leu Ala Ala Ala Gly Val 35 40 45

Pro Pro Ala Asp Lys Tyr Lys Thr Phe Val Ala Thr Phe Gly Ala Ala 50 55 60

Ser Asn Lys Ala Phe Ala Glu Gly Leu Ser Ala Glu Pro Lys Gly Ala 65 70 75 80

Ala Glu Ser Ser Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala 90 95

Tyr Lys Leu Ala Tyr Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys 100 105 110

Tyr Asp Ala Tyr Val Ala Thr Leu Ser Glu Ala Leu Arg Ile Ile Ala 115 120 125

Gly Thr Leu Glu Val His Ala Val Lys Pro Ala Ala Glu Glu Val Lys 130 135 140

Val Ile Pro Ala Gly Glu Leu Gln Val Ile Glu Lys Val Asp Ser Ala 145 150 155 160

Phe Lys Val Ala Ala Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys 165 170 175

Phe Thr Val Phe Glu Ala Ala Phe Asn Asn Ala Ile Lys Ala Ser Thr 180 185 190

Gly Gly Ala Tyr Glu Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala 195 200 205

Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys 210 215 220

Tyr Thr Val Phe Glu Thr Ala Leu Lys Lys Ala Phe Thr Ala Met Ser 225 230 235 240

Glu Ala Gln Lys Ala Ala Lys Pro Ala Thr Glu Ala Thr Ala Thr Ala 245 250 255

Thr Ala Ala Val Gly Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly 260 265 270

Gly Tyr Lys Val 275

194 276 <210>

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PRT Phleum pratense

Ala Asp Leu Gly Tyr Gly Gly Pro Ala Thr Pro Ala Ala Pro Ala Glu 1 10 15

Ala Ala Pro Ala Gly Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu 20 25 30

Lys Ile Asn Asp Gly Phe Lys Ala Ala Leu Ala Ala Ala Gly Val $35 \hspace{1.5cm} 40 \hspace{1.5cm} 45$ 

Pro Pro Ala Asp Lys Tyr Lys Thr Phe Val Ala Thr Phe Gly Ala Ala 50 55 60

Ser Asn Lys Ala Phe Ala Glu Gly Leu Ser Ala Glu Pro Lys Gly Ala 65 70 75 80

Ala Glu Ser Ser Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala 85 90 95

Tyr Lys Leu Ala Tyr Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Glu 100 105 110

Tyr Asp Ala Tyr Val Ala Thr Leu Ser Glu Ala Leu Arg Ile Ile Ala 115 120 125

Gly Thr Leu Glu Val His Ala Val Lys Pro Ala Ala Glu Glu Val Lys 130 135 140

Val Ile Pro Ala Gly Glu Leu Gln Val Ile Glu Lys Val Asp Ser Ala 145 150 155 160

Leu Lys Val Ala Ala Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys 165 170 175

100H94~2.TXT
Phe Thr Val Phe Glu Ala Ala Phe Asn Asn Ala Ile Lys Ala Ser Thr
180 185 190 Gly Gly Ala Tyr Glu Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala 195 200 205 Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys 210 215 220 Tyr Thr Val Phe Glu Thr Ala Leu Lys Lys Ala Ile Thr Ala Thr Ser 225 230 235 240 Glu Ala Gln Lys Ala Ala Lys Pro Ala Thr Glu Ala Thr Ala 245 250 255

Thr Ala Ala Val Gly Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly 260 265 270

Gly Tyr Lys Val 275

195 276 <210>

Phleum pratense

Ala Asp Leu Gly Tyr Gly Gly Pro Ala Thr Pro Ala Ala Pro Ala Glu 1 10 15

Ala Ala Pro Ala Gly Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu 20 25 30

Lys Ile Asn Asp Gly Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val 35 40 45

Pro Pro Ala Asp Lys Tyr Lys Thr Phe Val Ala Thr Phe Gly Ala Ala 50 55 60

Ser Asn Lys Ala Phe Ala Glu Gly Leu Ser Ala Glu Pro Lys Gly Ala 65 70 75 80

Ala Glu Ser Ser Ser Lys Gly Ala Leu Thr Ser Lys Leu Glu Ala Ala 85 90 95

Tyr Lys Leu Ala Tyr Lys Thr Ser Glu Gly Ala Thr Pro Glu Ala Lys 100 105 110

Tyr Asp Ala Tyr Val Ala Thr Leu Ser Glu Ala Leu Arg Ile Ile Ala 115 120 125

Gly Thr Leu Glu Val His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Page 156

Val Ile Pro Ala Gly Glu Leu Gln Phe Ile Glu Lys Val Asp Ser Ala 145 150 155 160

135

Leu Lys Val Ala Ala Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys 165 170 175

Phe Thr Val Phe Glu Ala Ala Phe Asn His Ala Ile Lys Ala Ser Thr 180 185 190

Gly Gly Ala Tyr Glu Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala 195 200 205

Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys 210 220

Tyr Thr Val Phe Glu Thr Ala Leu Lys Lys Ala Ile Thr Ala Met Ser 225 230 235 240

Glu Ala Gln Lys Ala Ala Lys Pro Ala Thr Glu Ala Thr Ala Thr Ala 245 250 255

Thr Ala Ala Val Gly Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly 260 265 270

Gly Tyr Lys Val 275

<210> 196 <211> 373

<211> 3/3 <212> PRT

<213> Poa pratensis

<400> 196

Met Asp Lys Ala Asn Gly Ala Tyr Lys Thr Ala Leu Lys Ala Ala Ser  $1 \hspace{1cm} 5 \hspace{1cm} 10 \hspace{1cm} 15$ 

Ala Val Ala Pro Ala Glu Lys Phe Pro Val Phe Gln Ala Thr Phe Asp 20 25 30

Lys Asn Leu Lys Glu Gly Leu Ser Gly Pro Asp Ala Val Gly Phe Ala 35 40 45

Lys Lys Leu Asp Ala Phe Ile Gln Thr Ser Tyr Leu Ser Thr Lys Ala 50 60

Ala Glu Pro Lys Glu Lys Phe Asp Leu Phe Val Leu Ser Leu Thr Glu 65 70 75 80

Val Leu Arg Phe Met Ala Gly Ala Val Lys Ala Pro Pro Ala Ser Lys 85 90 95 Page 157

Phe Pro Ala Lys Pro Ala Pro Lys Val Ala Ala Tyr Thr Pro Ala Ala 100 105 110 Pro Ala Gly Ala Ala Pro Lys Ala Thr Thr Asp Glu Gln Lys Leu Ile 115 120 125 Glu Lys Ile Asn Val Gly Phe Lys Ala Ala Val Ala Ala Ala Gly 130 135 140 Val Pro Ala Ala Ser Lys Tyr Lys Thr Phe Val Ala Thr Phe Gly Ala 145 150 155 160 Ala Ser Asn Lys Ala Phe Ala Glu Ala Leu Ser Thr Glu Pro Lys Gly
165 170 175 Ala Ala Val Ala Ser Ser Lys Ala Val Leu Thr Ser Lys Leu Asp Ala 180 185 190 Ala Tyr Lys Leu Ala Tyr Lys Ser Ala Glu Gly Ala Thr Pro Glu Ala 195 200 205 Lys Tyr Asp Ala Tyr Val Ala Thr Leu Ser Glu Ala Leu Arg Ile Ile 210 215 220 Ala Gly Thr Leu Glu Val His Gly Val Lys Pro Ala Ala Glu Glu Val 225 230 235 240 Lys Ala Ile Pro Ala Gly Glu Leu Gln Val Ile Asp Lys Val Asp Ala 245 250 255 Ala Phe Lys Val Ala Ala Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp 260 265 270 Lys Phe Thr Val Phe Glu Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser 275 280 285 Thr Gly Gly Ala Tyr Gln Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala 290 295 300 Ala Val Lys Gln Ser Tyr Ala Ala Thr Val Ala Thr Ala Pro Ala Val 305 310 315 320 Lys Tyr Thr Val Phe Glu Thr Ala Leu Lys Lys Ala Ile Thr Ala Met 325 330 335 Ser Gln Ala Gln Lys Ala Ala Lys Pro Ala Ala Ala Val Thr Gly Thr 340 345 350 Ala Thr Ser Ala Val Gly Ala Ala Thr Gly Ala Ala Thr Ala Ala Ala 355 360 365 Page 158

Gly Gly Tyr Lys Val 370

<210> 197

<211> 339

<212> PRT

<213> Lolium perenne

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Ala Thr Pro Ala Thr Pro Ala Ala Pro Ala Thr Ala Ala Thr Pro Ala 35 40 45

Thr Pro Ala Thr Pro Ala Thr Pro Ala Ala Val Pro Ser Gly Lys Ala 50 60

Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Ile Asn Ala Gly Phe Lys 65 70 75 80

Ala Ala Val Ala Ala Ala Val Val Pro Pro Ala Asp Lys Tyr Lys 85 90 95

Thr Phe Val Glu Thr Phe Gly Thr Ala Thr Asn Lys Ala Phe Val Glu 100 105 110

Gly Leu Ala Ser Gly Tyr Ala Asp Gln Ser Lys Asn Gln Leu Thr Ser 115 120 125

Lys Leu Asp Ala Ala Leu Lys Leu Ala Tyr Glu Ala Ala Gln Gly Ala 130 140

Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val Ala Thr Leu Thr Glu Ala 145 150 150 155 160

Leu Arg Val Ile Ala Gly Thr Leu Glu Val His Ala Val Lys Pro Ala 165 170 175

Ala Glu Glu Val Lys Val Gly Ala Ile Pro Ala Ala Glu Val Gln Leu 180 185 190

Ile Asp Lys Val Asp Ala Ala Tyr Arg Thr Ala Ala Thr Ala Ala Asn 195 200 205

Ala Ala Pro Ala Asn Asp Lys Phe Thr Val Phe Glu Asn Thr Phe Asn 210 215 220

Asn Ala Ile Lys Val Ser Leu Gly Ala Ala Tyr Asp Ser Tyr Lys Phe 225 230 235 240

Ile Pro Thr Leu Val Ala Ala Val Lys Gln Ala Tyr Ala Ala Lys Gln 245 250 255

Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Ser Glu Thr Ala Leu Lys 260 265 270

Lys Ala Val Thr Ala Met Ser Glu Ala Glu Lys Glu Ala Thr Pro Ala 275 280 285

Ala Ala Ala Thr Ala Thr Pro Thr Pro Ala Ala Ala Thr Ala Thr Ala 290 295 300

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Tyr Lys Val

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Ala Ala Ala Thr Pro Ala Thr Pro Ala Ala Thr Pro Ala Ala Ala 35 40 45

Gly Gly Lys Ala Thr Thr Asp Glu Gln Lys Leu Leu Glu Asp Val Asn 50 60

Ala Gly Phe Lys Ala Ala Val Ala Ala Ala Ala Asn Ala Pro Pro Ala 65 70 75 80

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<sup>&</sup>lt;210> 198

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100H94~2.TXT
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Val Ile Ala Gly Ala Leu Glu Val His Ala Val Lys Pro Ala Thr Glu 145 150 155 160

Glu Val Pro Ala Ala Lys Ile Pro Thr Gly Glu Leu Gln Ile Val Asp 165 170 175

Lys Ile Asp Ala Ala Phe Lys Ile Ala Ala Thr Ala Ala Asn Ala Ala . 180 185 190

Pro Thr Asn Asp Lys Phe Thr Val Phe Glu Ser Ala Phe Asn Lys Ala 195 200 205

Leu Asn Glu Cys Thr Gly Gly Ala Tyr Glu Thr Tyr Lys Phe Ile Pro 210 215 220

Ser Leu Glu Ala Ala Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Ala 225 230 235 240

Ala Pro Glu Val Lys Tyr Ala Val Phe Glu Ala Ala Leu Thr Lys Ala 245 250 255

Ile Thr Ala Met Thr Gln Ala Gln Lys Ala Gly Lys Pro Ala Ala Ala 260 265 270

Ala Ala Thr Gly Ala Ala Thr Val Ala Thr Gly Ala Ala Thr Ala Ala 275 280 285

Ala Gly Ala Ala Thr Ala Ala Ala Gly Gly Tyr Lys Ala 290 295 300

Met Ala Val Gln Lys Tyr Thr Val Ala Leu Phe Leu Ala Val Ala Leu 1 10 15

Val Ala Gly Pro Ala Asp Ser Tyr Ala Ala Asp Ala Gly Tyr Thr Pro
20 25 30

Ala Ala Ala Thr Pro Ala Thr Pro Ala Ala Thr Pro Ala Ala Gly
35 40 45

Gly Gly Lys Ala Thr Thr Asp Glu Gln Lys Leu Leu Glu Asp Val Asn

<sup>&</sup>lt;210> <211> 199

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Lolium perenne

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<sup>&</sup>lt;210> 200 <211> 290

<sup>&</sup>lt;212> PRT

<sup>&</sup>lt;213> Phleum pratense

<400> 200

Met Ala Val Gln Lys Tyr Thr Val Ala Leu Phe Leu Ala Val Ala Leu 1 5 10 15 Val Ala Gly Pro Ala Ala Ser Tyr Ala Ala Asp Ala Gly Tyr Ala Pro 20 25 30 Ala Thr Pro Ala Ala Ala Gly Ala Glu Ala Gly Lys Ala Thr Thr Glu 35 40 45 Glu Gln Lys Leu Ile Glu Asp Ile Asn Val Gly Phe Lys Ala Ala Val 50 60 Ala Ala Ala Ser Val Pro Ala Ala Asp Lys Phe Lys Thr Phe Glu 65 70 75 80 Ala Ala Phe Thr Ser Ser Ser Lys Ala Ala Thr Ala Lys Ala Pro Gly 85 90 95 Leu Val Pro Lys Leu Asp Ala Ala Tyr Ser Val Ala Tyr Lys Ala Ala 100 105 110 Val Gly Ala Thr Pro Glu Ala Lys Phe Asp Ser Phe Val Ala Ser Leu 115 120 125 Thr Glu Ala Leu Arg Val Ile Ala Gly Ala Leu Glu Val His Ala Val 130 135 140 Lys Pro Val Thr Glu Asp Pro Ala Trp Pro Lys Ile Pro Ala Gly Glu 145 150 155 160 Leu Gln Ile Ile Asp Lys Ile Asp Ala Ala Phe Lys Val Ala Ala Thr 165 170 175 Ala Ala Ala Thr Ala Pro Ala Asp Asp Lys Phe Thr Val Phe Glu Ala 180 185 Ala Phe Asn Lys Ala Ile Lys Glu Ser Thr Gly Gly Ala Tyr Asp Thr 195 200 205 Tyr Lys Cys Ile Pro Ser Leu Glu Ala Ala Val Lys Gln Ala Tyr Ala 210 215 220 Ala Thr Val Ala Ala Ala Pro Gln Val Lys Tyr Ala Val Phe Glu Ala 225 230 235 240 Ala Leu Thr Lys Ala Ile Thr Ala Met Ser Glu Val Gln Lys Val Ser 245 250 255 Gln Pro Ala Thr Gly Ala Ala Thr Val Ala Ala Gly Ala Ala Thr Thr 260 265 270 Page 163

Ala Thr Gly Ala Ala Ser Gly Ala Ala Thr Val Ala Ala Gly Gly Tyr 275 280 285

Lys Val 290

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<211> 264 <212> PRT

<213> Holcus lanatus

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Gly Phe Lys Thr Ala Val Ala Ala Ala Ala Asn Val Pro Pro Ala Asp 35 40 45

Lys Tyr Lys Thr Phe Glu Ala Ala Phe Thr Ala Ser Ser Lys Ala Ser 50 60

Ile Ala Ala Ala Thr Lys Ala Pro Gly Leu Ile Pro Gln Leu Asn 65 70 75 80

Ala Ala Thr Asn Thr Ala Tyr Ala Ala Ala Gln Gly Ala Thr Pro Glu 85 90 95

Ala Lys Tyr Asp Ala Phe Val Thr Thr Leu Thr Glu Ala Leu Arg Val 100 105 110

Ile Ala Gly Ala Leu Glu Val His Ala Val Lys Pro Ala Thr Glu Glu 115 120 125

Val Gly Ala Ala Lys Ile Pro Ala Gly Glu Leu Gln Ile Val Asp Lys 130 135 140

Ile Asp Ala Ala Phe Arg Ile Ala Ala Thr Ala Ala Asn Ala Ala Pro 145 150 155 160

Val Asn Asp Lys Phe Thr Val Phe Glu Gly Ala Phe Asn Lys Ala Ile 165 170 175

Lys Glu Ser Thr Gly Gly Ala Tyr Glu Ala Tyr Lys Phe Ile Pro Ser 180 185 190

Leu Glu Thr Ala Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Thr Ala 195 200 205

Pro Glu Val Lys Tyr Thr Val Phe Glu Thr Ala Leu Lys Lys Ala Ile 210 215 220

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Thr Gly Ala Ala Thr Ala Ala Ala Gly Val Ala Ala Gly Ala Ala Thr 245 250 255

Ala Ala Ala Gly Gly Tyr Lys Val 260

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<211> 287

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Ala Thr Pro Ala Ala Ala Gly Ala Glu Ala Gly Lys Ala Thr Thr Glu
35 40 45

Glu Gln Lys Leu Ile Glu Asp Ile Asn Val Gly Phe Lys Ala Ala Val 50 60

Ala Ala Ala Ser Val Pro Ala Ala Asp Lys Phe Lys Thr Phe Glu 65 70 75 80

Ala Ala Phe Thr Ser Ser Ser Lys Ala Ala Thr Ala Lys Ala Pro Gly 85 90 95

Leu Val Pro Lys Leu Asp Ala Ala Tyr Ser Val Ser Tyr Lys Ala Ala 100 105 110

Val Gly Ala Thr Pro Glu Ala Lys Phe Asp Ser Phe Val Ala Ser Leu 115 120 125

Thr Glu Ala Leu Arg Val Ile Ala Gly Ala Leu Glu Val His Ala Val 130 135 140

Lys Pro Val Îhr Glu Glu Pro Gly Met Ala Lys Ile Pro Ala Gly Glu 145 150 155 160

Leu Gln Ile Ile Asp Lys Ile Asp Ala Ala Phe Lys Val Ala Ala Thr 165 170 175

Met Ala Val Gln Lys Tyr Thr Val Ala Leu Phe Leu Thr Val Ala Leu 1 5 10 15

Val Ala Gly Pro Ala Ala Ser Tyr Ala Ala Asp Ala Gly Tyr Ala Pro 20 25 30

Thr Thr Pro Ala Ala Ala Gly Ala Ala Ala Gly Lys Ile Thr Pro Thr 35 40 45

Gln Glu Gln Lys Leu Met Glu Asp Ile Asn Val Gly Phe Lys Ala Ala 50 60

Val Ala Ala Ala Gly Ala Pro Pro Ala Asp Lys Phe Lys Thr Phe 65 70 75 80

Gln Ala Ala Phe Ser Ala Ser Val Glu Ala Ser Ala Ala Lys Leu Asn 85 90 95

Ala Ala Gln Ala Pro Gly Phe Val Ser His Val Ala Ala Thr Ser Asp 100 105 110

Ala Thr Tyr Lys Ala Ala Val Gly Ala Thr Pro Glu Ala Lys Phe Asp 115 120 125

Ser Phe Val Ala Ala Phe Thr Glu Ala Leu Arg Val Ile Ala Gly Val Page 166

<sup>&</sup>lt;210> 203

<sup>&</sup>lt;211> 296

<sup>&</sup>lt;213> Holcus lanatus

<sup>&</sup>lt;400> 203

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135

Phe Lys Val Ala Ala Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys 180 185 190

Phe Thr Val Phe Glu Ala Ala Phe Asn Asn Ala Ile Lys Glu Ser Thr 195 200 205

Gly Gly Ala Tyr Asp Thr Tyr Lys Ser Ile Pro Ser Leu Glu Ala Ala 210 215 220

Val Lys Gln Ala Tyr Ala Ala Thr Ile Ala Ala Ala Pro Glu Val Lys 225 230 235 240

Phe Ala Val Phe Lys Ala Ala Leu Thr Lys Ala Ile Thr Ala Met Ala 245 250 255

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Val Ser Ala Gly Gly Tyr Lys Val 290 295

204 303 <210>

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Poa pratensis

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Ala Thr Pro Ala Ala Ala Gly Ala Ala Ala Gly Lys Ile Thr Pro Thr 35 40 45

Gln Glu Gln Lys Leu Met Glu Asp Ile Asn Val Gly Phe Lys Ala Ala 50 55 60

Val Ala Ala Ala Gly Ala Pro Pro Ala Asp Lys Phe Lys Thr Phe 65 70 75 80 Page 167

Gln Ala Ala Phe Ser Ala Ser Val Glu Ala Ser Ala Ala Lys Leu Asn 85 90 95 Ala Ala Gln Ala Pro Gly Phe Val Ser His Val Ala Ala Thr Ser Asp 100 105 110 Ala Thr Tyr Lys Ala Ala Val Gly Ala Thr Pro Glu Ala Lys Phe Asp 115 120 125 Ser Phe Val Ala Ala Phe Thr Glu Ala Leu Arg Ile Ile Ala Gly Val 130 135 140 Leu Lys Val His Ala Val Lys Pro Ile Thr Glu Glu Thr Gly Ala Ala 145 150 155 160 Lys Ile Pro Ala Gly Glu Gln Gln Ile Ile Asp Lys Ile Asp Ala Ala 165 170 175 Phe Lys Val Ala Ala Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys 180 185 190 Phe Thr Val Phe Glu Ala Ala Phe Asn Asn Ala Ile Lys Glu Ser Thr 195 200 205 Gly Gly Ala Tyr Asp Thr Tyr Lys Ser Ile Pro Ser Leu Glu Ala Ala 210 215 220 Val Lys Gln Ala Tyr Ala Ala Thr Ile Ala Ala Pro Glu Val Lys 225 230 235 240 Phe Ala Val Phe Lys Ala Ala Leu Thr Lys Ala Ile Thr Ala Met Ala 245 250 255 Glu Val Gln Lys Val Ser Lys Pro Val Ala Gly Ala Ala Thr Val Ala 260 265 270 Ala Gly Ala Ala Thr Ala Ala Thr Gly Ala Ala Thr Gly Ala Ala Gly
275 280 285 Ala Ala Thr Gly Ala Ala Thr Val Ser Ala Gly Gly Tyr Lys Val 290 295 300

<sup>&</sup>lt;210> 205 <211> 295

<sup>&</sup>lt;211> 295 <212> PRT

<sup>&</sup>lt;213> Phleum pratense

<sup>&</sup>lt;400> 205

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Pro Arg Arg Gly Pro Arg Gly Gly Pro Gly Arg Ser Tyr Ala Ala Asp 20 25 30 Ala Gly Tyr Ala Pro Ala Thr Pro Ala Ala Gly Ala Glu Ala Gly 35 40 45 Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Asp Ile Asn Val Gly 50 60 Phe Lys Ala Ala Val Ala Ala Ala Ser Val Pro Ala Ala Asp Lys 65 70 75 80 Phe Lys Thr Phe Glu Ala Ala Phe Thr Ser Ser Lys Ala Ala Thr 85 90 95 Ala Lys Ala Pro Gly Leu Val Pro Lys Leu Asp Ala Ala Tyr Ser Val 100 105 110 Ala Tyr Lys Ala Ala Val Gly Ala Thr Pro Glu Ala Lys Phe Asp Ser 115 120 125 Phe Val Ala Ser Leu Thr Glu Ala Leu Arg Val Ile Ala Gly Ala Leu 130 140 Glu Val His Ala Val Lys Pro Val Thr Glu Glu Pro Gly Met Ala Lys 145 150 150 155 Ile Pro Ala Gly Glu Leu Gln Ile Ile Asp Lys Ile Asp Ala Ala Phe 165 170 175 Lys Val Ala Ala Thr Ala Ala Thr Ala Pro Ala Asp Asp Lys Phe 180 185 190 Thr Val Phe Glu Ala Ala Phe Asn Lys Ala Ile Lys Glu Ser Thr Gly 195 200 205 Gly Ala Tyr Asp Thr Tyr Lys Cys Ile Pro Ser Leu Glu Ala Ala Val 210 215 220 Lys Gln Ala Tyr Ala Ala Thr Val Ala Ala Ala Pro Gln Val Lys Tyr 225 230 235 240 Ala Val Phe Glu Ala Ala Leu Thr Lys Ala Ile Thr Ala Met Ser Glu 245 250 255 Val Gln Lys Val Ser Gln Pro Ala Thr Gly Ala Ala Thr Val Ala Ala 260 265 270 Gly Ala Ala Thr Thr Ala Ala Gly Ala Ala Ser Gly Ala Ala Thr Val 275 280 285 Ala Ala Gly Gly Tyr Lys Val 290 295

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281

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Phleum pratense

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Val Gly Phe Lys Ala Ala Val Ala Ala Ala Ala Ser Val Pro Ala Gly 50 60

Asp Lys Phe Lys Thr Phe Glu Ala Ala Phe Thr Ser Ser Lys Ala 65 70 75 80

Ala Thr Ala Lys Ala Pro Gly Leu Val Pro Lys Leu Asp Ala Ala Tyr 85 90 95

Ser Val Ala Tyr Lys Ala Ala Val Gly Ala Thr Pro Glu Ala Lys Phe 100 105 110

Asp Ser Phe Val Ala Ser Leu Thr Glu Ala Leu Arg Val Ile Ala Gly 115 120 125

Ala Leu Glu Val His Ala Val Lys Pro Val Thr Glu Glu Pro Gly Met 130 135 140

Ala Lys Ile Pro Ala Gly Glu Leu Gln Ile Ile Asp Lys Ile Asp Ala 145 150 155 160

Ala Phe Lys Val Ala Ala Thr Ala Ala Ala Thr Ala Pro Ala Asp Asp 165 170 175

Lys Phe Thr Val Phe Glu Ala Ala Phe Asn Lys Ala Ile Lys Glu Ser 180 185 190

Thr Gly Gly Ala Tyr Asp Thr Tyr Lys Cys Ile Pro Ser Leu Glu Ala 195 200 205

Ala Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Ala Ala Pro Gln Val 210 220

100H94~2.TXT Lys Tyr Ala Val Phe Glu Ala Ala Leu Thr Lys Ala Ile Thr Ala Met 225 230 235 240

Ser Glu Val Gln Lys Val Ser Gln Pro Ala Thr Gly Ala Ala Thr Val 245 250 255

Ala Ala Gly Ala Ala Thr Thr Ala Thr Gly Ala Ala Ser Gly Ala Ala 260 265 270

Thr Val Ala Ala Gly Gly Tyr Lys Val 275 280

<210> 207

<211> 284

<212> PRT

<213> Phleum pratense

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Ser Tyr Thr Ala Asp Ala Gly Tyr Ala Pro Ala Thr Pro Ala Ala Ala 20 25 30

Gly Ala Ala Ala Gly Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu
35 40 45

Asp Ile Asn Val Gly Phe Lys Ala Ala Val Ala Ala Ala Ala Ser Val 50 60

Pro Ala Ala Asp Lys Phe Lys Thr Phe Glu Ala Ala Phe Thr Ser Ser 65 70 75 80

Ser Lys Ala Ala Ala Lys Ala Pro Gly Leu Val Pro Lys Leu Asp 85 90 95

Ala Ala Tyr Ser Val Ala Tyr Lys Ala Ala Val Gly Ala Thr Pro Glu 100 105 110

Ala Lys Phe Asp Ser Phe Val Ala Ser Leu Thr Glu Ala Leu Arg Val 115 120 125

Ile Ala Gly Ala Leu Glu Val His Ala Val Lys Pro Val Thr Glu Glu 130 135 140

Pro Gly Met Ala Lys Ile Pro Ala Gly Glu Leu Gln Ile Ile Asp Lys 145 150 155 160

Ile Asp Ala Ala Phe Lys Val Ala Ala Thr Ala Ala Ala Thr Ala Pro 165 170 175

Ala Asp Asp Lys Phe Thr Val Phe Glu Ala Ala Phe Asn Lys Ala Ile Page 171

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Ala Asp Ala Gly Tyr Ala Pro Ala Thr Pro Ala Ala Ala Gly Ala Glu 1 5 10 15

Ala Gly Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Asp Ile Asn 20 25 30

Val Gly Phe Lys Ala Ala Val Ala Ala Ala Ala Ser Val Pro Ala Ala 35 40 45

Asp Lys Phe Lys Thr Phe Glu Ala Ala Phe Thr Ser Ser Ser Lys Ala 50 60

Ala Thr Ala Lys Ala Pro Gly Leu Val Pro Lys Leu Asp Ala Ala Tyr 65 70 75 80

Ser Val Ala Tyr Lys Ala Ala Val Gly Ala Thr Pro Glu Ala Lys Phe 85 90 95

Asp Ser Phe Val Ala Ser Leu Thr Glu Ala Leu Arg Val Ile Ala Gly 100 105 110

Ala Leu Glu Val His Ala Val Lys Pro Val Thr Glu Glu Pro Gly Met 115 120 125

Ala Lys Ile Pro Ala Gly Glu Leu Gln Ile Ile Asp Lys Ile Asp Ala 130 140 Page 172

<sup>&</sup>lt;210> 208

<sup>&</sup>lt;211> 266

<sup>&</sup>lt;212> PRT

<sup>&</sup>lt;213> Phleum pratense

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Lys Phe Thr Val Phe Glu Ala Ala Phe Asn Lys Ala Ile Lys Glu Ser 165 170 175

Thr Gly Gly Ala Tyr Asp Thr Tyr Lys Cys Ile Pro Ser Leu Glu Ala 180 185 190

Ala Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Ala Ala Pro Gln Val 195 200 205

Lys Tyr Ala Val Phe Glu Ala Ala Leu Thr Lys Ala Ile Thr Ala Met 210 215 220

Ser Glu Val Gln Lys Val Ser Gln Pro Ala Thr Gly Ala Ala Thr Val 225 230 235 240

Ala Ala Gly Ala Ala Thr Gly Thr Ala Ala Gly Ala Ala Ser Gly Ala 245 250 255

Ala Thr Val Ala Ala Gly Gly Tyr Lys Val 260 265

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Gln Lys Leu Leu Glu Asp Val Asn Ala Ser Phe Lys Ala Ala Val Ala 1 5 10 15

Ala Ala Ala Lys Val Pro Pro Ala Asp Lys Tyr Lys Thr Phe Leu Arg 20 25 30

Ala Phe Thr Val Leu Asp Arg Gly Ser Thr Glu Gln Ser Lys Ala Glu 35 40 45

Glu Thr Lys Met Pro Glu Leu Ser Ser Lys Leu Val Asp Ala Tyr Met 50 55 60

Ala Ala Phe Lys Ala Ser Thr Gly Gly Thr Gln Glu Ala Lys Tyr Asp 65 70 75 80

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Phe Lys Ile Ala Ala Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys 130 140

Phe Thr Val Phe Glu Thr Ala Phe Asn Lys Ala Leu Lys Glu Ser Thr 145 150 155 160

Gly Gly Ala Tyr Glu Ser Tyr Lys Phe Ile Pro Ser Leu Glu Ala Ala 165 170 175

Val Lys Gln Ala Tyr Ala Ser Thr Val Ala Ala Ala Pro Glu Val Lys 180 185

Tyr Ala Val Phe Glu Ala Ala Leu Thr Lys Ala Ile Thr Ala Met Ser 195 200 205

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Thr His Glu Gln Lys Leu Ile Glu Asp Ile Asn Ala Ala Phe Lys Trp 50 55 60

Trp Pro Ala Ser Ala Pro Pro Ala Asp Lys Tyr Lys Thr Phe Glu Thr 65 70 75 80

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Ala Ala Tyr Ser Val Val Tyr Asn Thr Ala Ala Gly Ala Thr Pro Glu 100 105 110

<sup>210</sup> 294 <210>

<sup>&</sup>lt;212> **PRT** 

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Arg Gly Gly Tyr Lys Val 290

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<213> Phalaris aquatica

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Leu Leu Pro Pro Pro Arg Ala Arg Asp Lys Ala Thr Leu Thr Ser Arg 35 40 45

Ser Val Glu Asp Ile Asn Ala Ala Ser Arg Arg Pro Trp Trp Ala Ser Page 175 55

Val Pro Pro Ala Asp Lys Phe Lys Thr Phe Ala Asp His Val Leu Cys 65 70 75 80 Val Pro Asn Ala Asp Val Thr Ser Ala Ala Thr Lys Ala Pro Gln Leu 85 90 95 Lys Ala Lys Leu Asp Ala Ala Tyr Arg Val Ala Tyr Glu Ala Ala Glu 100 105 110 Gly Ser Thr Pro Glu Ala Lys Tyr Asp Ala Phe Ile Ala Ala Leu Thr 115~ 120  $^{\circ}125~$ Glu Ala Leu Arg Val Ile Ala Gly Ala Phe Glu Val His Ala Val Lys 130 135 140 Pro Ala Thr Glu Glu Val Val Ala Asp Pro Val Gly Glu Leu Gln Ile 145 150 155 160 Val Asp Lys Ile Asp Ala Ala Phe Lys Ile Ala Ala Thr Ala Ala Asn 165 170 175 Ser Ala Pro Ala Asn Asp Lys Phe Thr Val Phe Glu Gly Ala Phe Asn 180 185 Lys Ala Ile Lys Glu Ser Thr Ala Gly Ala Tyr Glu Thr Tyr Lys Phe 195 200 205 Ile Pro Ser Leu Glu Ala Ala Val Lys Gln Ala Tyr Gly Ala Thr Val 210 215 220 Ala Arg Ala Pro Glu Val Lys Tyr Ala Val Phe Glu Ala Gly Leu Thr 225 230 235 240 Lys Ala Ile Thr Ala Met Ser Glu Ala Gln Lys Val Ala Lys Pro Pro 245 250 255 Leu Ser Pro Gln Pro Pro Gln Val Leu Pro Leu Ala Ala Gly Gly Ala 260 265 270 Ala Thr Val Ala Ala Ala Ser Asp Val Arg Val Cys Arg Ser His Gly 275 280 285 Thr Leu Gln Asp Ala Cys Leu Leu Arg Cys Arg Gly Gly Cys Gln Pro 290 295 300 Val Val Trp Arg Gly Gly Ser His Arg Ala Arg Gly Gly Tyr Lys Val 305 310 315 320 <211> 313

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<213> Hordeum vulgare

<400> 212

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Tyr Val Cys Val Gly Asn Ile Asn Ala Pro Phe Pro Val Phe Asn Arg 35 40 45

Thr Thr Phe Ile Ala Asn Ala Gly Ile Glu Ala Glu Leu Glu Pro His 50 60

Phe Leu Leu Leu Phe Thr Phe Ser Ser Ser Ser Phe Phe Thr 70 75 80

Leu Leu Lys Thr Met Ile His Phe Thr Asp Arg Ser Asp Asn Lys Asn 85 90 95

Lys Ala Met Met Arg Gly Arg Glu Phe Arg Lys Ala Phe Ala Glu Val 100 105 110

Leu Lys Gly Ala Ala Thr Gly Gln Ile Ala Gly Gln Ser Ser Met

Ala Lys Leu Ser Ser Leu Glu Leu Ser Tyr Lys Leu Ala Tyr Asp 130 135 140

Lys Ala Gln Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val Ala 145 150 155 160

Thr Leu Thr Glu Ser Leu Arg Val Ile Ser Gly Thr Leu Glu Val His 165 170 175

Ser Val Lys Pro Ala Ala Glu Glu Val Lys Gly Val Pro Ala Gly Glu 180 185 190

Leu Lys Ala Ile Asp Gln Val Asp Ala Ala Phe Arg Thr Ala Ala Thr 195 200 205

Ala Ala Asp Ala Ala Pro Ala Asn Asp Lys Phe Thr Val Phe Glu Ser 210 215 220

Leu Gln Gln Gly Pro Ser Arg Lys Pro Arg Gly Gly Ala Tyr Glu Ser 225 230 235 240

Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Gln Ala Tyr Ala 245 250 255 Page 177

Ala Thr Val Ala Ala Ala Pro Glu Val Lys Phe Thr Val Phe Gln Thr 260 265 270

Ala Leu Ser Lys Ala Ile Asn Ala Met Thr Gln Ala Gln Lys Val Ala 275 280 285

Lys Pro Ala Ala Ala Ala Thr Ala Thr Val Ala Ala Gly Ala 290 295 300

Ala Ala Thr Ala Gly Asn Tyr Lys Val 305 310

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<212> PRT

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Pro Glu Ala Lys Tyr Asp Ala Tyr Val Ala Thr Leu Thr Glu Ser Leu 20 25 30

Arg Val Ile Ser Gly Thr Leu Glu Val His Ser Val Lys Pro Ala Ala 35 40 45

Glu Glu Val Lys Gly Val Pro Ala Gly Glu Leu Lys Ala Ile Asp Gln 50 60

Val Asp Ala Ala Phe Arg Thr Ala Ala Thr Ala Ala Asp Ala Ala Pro 65 70 75 80

Ala Asn Asp Lys Phe Thr Val Phe Glu Ser Leu Gln Gln Gly Pro Ser 85 90 95

Arg Lys Pro Arg Gly Gly Ala Tyr Glu Ser Tyr Lys Phe Ile Pro Ala 100 105 110

Leu Glu Ala Ala Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Ala Ala 115 120 125

Pro Glu Val Lys Phe Thr Val Phe Gln Thr Ala Leu Ser Lys Ala Ile 130 135 140

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Tyr Lys Val

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Cys Asn Tyr Gly Pro Ser Gly Asn Phe Lys Asn Glu Glu Leu Tyr Gln 195 200 205 Page 179

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Leu Val Pro Gly Cys His Gly Ser Glu Pro Cys Ile Ile Asn Arg Gly
20 25 30
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aaa cca ttc caa ttg gaa gcc gtt ttc gaa gcc aac caa aac aca aaa
Lys Pro Phe Gln Leu Glu Ala Val Phe Glu Ala Asn Gln Asn Thr Lys
35 40 45
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acc gct aaa att gaa atc aaa gcc tca atc gat ggt tta tca gtt gat
Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Ser Val Asp
50 55 60
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Val Pro Gly Ile Asp Pro Asn Ala Cys Asn Tyr Met Lys Cys Pro Leu

80

Val Asn Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys

1le Ala Pro Lys Ser Glu Asn Val Val Val Thr Val Lys Val Met Gly

Asp Asp Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Arg 115 120 125

Asp